49. The method of claim 44 wherein identifying the region over which the slope of the histogram data changes comprises determining whether a number of areas having other image data deviations exceeds a predetermined allowable number of areas having image data deviations per unit area for image data other than brightness data.

REMARKS

Claims 27 through 49 are pending. Claim 47 has been objected to for informalities. Claims 27 through 30, 33 through 37, 40, 41 and 44 through 46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 5,943,437 granted to Sumie et al. (hereinafter *Sumie*) and U.S. Patent 6,031,607 granted to Miyazaki (hereinafter *Miyazaki*). Claims 31, 38, 42, and 47 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sumie* and *Miyazaki*, and further in view of U.S. Patent 5,640,200 granted to Michael (hereinafter *Michael*). Claims 32, 39, 43, 48 and 49 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sumie* and *Miyazaki* and further in view of U.S. Patent 5,539,752 granted to Berezin at al. (hereinafter *Berezin*). Claims 31, 32, 38, 39, 42, 43, and 47 through 49 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sumie* and *Miyazaki* and further in view of U.S. Patent 5,091,963 granted to Litt et al. (hereinafter *Litt*). These rejections are respectfully traversed.

The objection as to claim 47 is addressed as follows. No such distinction is made as whether the area on the histogram, the area on a die, or any other areas are being claimed. To the extent that multiple interpretations are enabled by the specification, all such interpretations are intended to be encompassed by the claims. Such claims are permitted under

M.P.E.P. 806.04(d). Applicants believe that the objection is therefore improper, and should be withdrawn.

Claims 27 through 30, 33 through 37, 40, 41, and 44 through 46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sumie* and *Miyazaki*. These rejections are respectfully traversed.

The combination of *Sumie* and *Miyazaki* fails to provide a prima facie basis for the rejection of Claims 27 through 30, 33 through 37, and 44 through 46 under 35 U.S.C. 103(a), as they fail to disclose each element of the claimed inventions, and because they teach away from the combination. *Miyazaki* discloses at col. 14, lines 60 through 67 that "each of the reference images from the reference image storing means 22 is compared with the detection image from the detection image storing means 23 to obtain a difference, from which a difference image is formed. The obtained difference ***images*** are converted into ***a brightness histogram.***" Thus, it is clear from *Miyazaki* that the histogram is formed from multiple difference images, which requires at least three sets of image data. It is noted that *Miyazaki* discloses multiple embodiments, of which only one uses histogram data, and that citations are made to these different embodiments in the Office Action to support combinations that *Miyazaki* does not teach.

In contrast, claim 27 states "a die image comparator creating ***a difference image*** from ***a first die image*** and ***a second die image;*** and a difference image analysis system coupled to the die image comparator, ***the difference image analysis system generating histogram data from the difference image*** . . ." Contrary to the teachings of *Miyazaki*, which require multiple

difference images, the invention of claim 1 "create[s] a difference image from a first die image and a second die image . . . and generat[es] histogram data from the difference image." Likewise, claim 33 states "the reference die detection system analyzing slope changes in histogram data derived from the ***image data of two or more dies.***" *Miyazaki* requires at least three sets of image data. Therefore, the combination of *Sumie* and *Miyazaki* fails to provide a prima facie basis for the rejection of Claims 27, 33. Claims 28 through 30 depend from claim 27, and claims 34 through 37, 40, and 41 depend from claim 33, and are allowable for at least the reasons that they depend from an allowable base claim and provide additional novel features not found in the prior art.

In regards to the rejection of claims 27 through 30, 33 through 37, and 44 through 46, the combination of *Sumie* and *Miyazaki* is improper because *Sumie* teaches away from the combination with *Miyazaki*. *Sumie* is drawn to a method and apparatus for classifying a defect on a wafer that performs a pixel by pixel comparison and the difference data is converted "into binary data based on a suitable threshold value." *Sumie*, col. 5, lines 47-48. Thus, the difference data in *Sumie* is never stored in a form so as to allow it to be converted into a histogram. In contrast, *Miyazaki* discloses at col. 14, lines 60 through 67 that "each of the reference images from the reference image storing means 22 is compared with the detection image from the detection image storing means 23 to obtain a difference, from which a difference image is formed. Thus, in order to use the system of *Sumie* with the system of *Miyazaki*, the system would need to be modified to store all of the image data, and *Sumie* notes that such a system would "disadvantageously [be] required to have a huge memory capacity."

Furthermore, both *Sumie* and *Miyazaki* presuppose the existence of a reference image. *See Sumie*, col. 8, lines 46 through 60 (requires at least six sets of image data (three sets of LI_1 and LI_2) plus a tolerance to be supplied); *Miyazaki* col. 16, lines 27 through 32. Thus, unlike claim 27, which is drawn to a system for selection of a reference die image for comparison with other die images, or claim 33 that includes a reference die detection system, or claim 44 which is drawn to a method for selecting a reference die image, *Sumie* and *Miyazaki* each presuppose the existence of a reference image. The entire concept of a system or method for selecting a reference die image from two sets of image data is foreign to *Sumie* and *Miyazaki*. Withdrawal of the rejection of claims 27 through 30, 33 through 37, and 44 through 46 is therefore respectfully requested.

Claims 31, 38, 42, and 47 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sumie* and *Miyazaki*, and further in view of *Michael*. These rejections are respectfully traversed.

As previously noted, the combination of *Sumie* and *Miyazaki* fails to provide a prima facie basis for the rejection of claims 31, 38, 42, and 47 as they fail to disclose each element of the claimed inventions, and because they teach away from the combination. *Michael* fails to cure this defect, as it discloses golden template comparison using efficient image registration which presupposes the existence of a golden template image that is the mean of a plurality of good sample images. *Michael*, col. 3, lines 46-50. Thus, unlike claim 27, which is drawn to a system for selection of a reference die image for comparison with other die images, or claim 33 that includes a reference die detection

system, or claim 44 which is drawn to a method for selecting a reference die image, *Sumie*, *Miyazaki*, and *Michael* each presuppose the existence of a reference image. The entire concept of a system or method for selecting a reference die image from two sets of image data is foreign to *Sumie*, *Miyazaki*, and *Michael*. Withdrawal of the rejection of rejection of claims 31, 38, 42, and 47 is respectfully requested.

Claims 32, 39, 43, 48 and 49 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sumie* and *Miyazaki* and further in view of *Berezin*. These rejections are respectfully traversed.

As previously noted, the combination of *Sumie* and *Miyazaki* fails to provide a prima facie basis for the rejection of claims 32, 39, 43, 48, and 49 as they fail to disclose each element of the claimed inventions, and because they teach away from the combination. *Berezin* fails to cure this defect, as it discloses automated analysis of semiconductor defect data which does not even address the manner in which the defects are detected. *Berezin*, Figure 4; col. 10, lines 53-60. Thus, unlike claim 27, which is drawn to a system for selection of a reference die image for comparison with other die images, or claim 33 that includes a reference die detection system, or claim 44 which is drawn to a method for selecting a reference die image, *Sumie*, *Miyazaki*, and *Berezin* each presuppose the existence of a reference image, or fails utterly to even address a reference image. The entire concept of a system or method for selecting a reference die image from two sets of image data is foreign to *Sumie*, *Miyazaki*, and *Berezin*. Withdrawal of the rejection of claims 32, 39, 43, 48 and 49 is respectfully requested.

Claims 31, 32, 38, 39, 42, 43, and 47 through 49 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sumie* and *Miyazaki* and further in view of *Litt*. These rejections are respectfully traversed.

As previously noted, the combination of *Sumie* and *Miyazaki* fails to provide a prima facie basis for the rejection of claims 31, 32, 38, 39, 42, 43, and 47 through 49 as they fail to disclose each element of the claimed inventions, and because they teach away from the combination. *Litt* fails to cure this defect, as it discloses inspection of surfaces for contrast variations which does not even address identification of reference image data. *Litt*, col. 5, lines 19-25. Thus, unlike claim 27, which is drawn to a system for selection of a reference die image for comparison with other die images, or claim 33 that includes a reference die detection system, or claim 44 which is drawn to a method for selecting a reference die image, *Sumie*, *Miyazaki*, and *Litt* each presuppose the existence of a reference image, or fail utterly to even address a reference image. The entire concept of a system or method for selecting a reference die image from two sets of image data is foreign to *Sumie*, *Miyazaki*, and *Litt*. Withdrawal of the rejection of claims 31, 32, 38, 39, 42, 43, and 47 through 49 is respectfully requested.

Conclusion

In view of the foregoing remarks and for various other reasons readily apparent, Applicants submit that all of the claims now present are allowable, and withdrawal of the rejections and a Notice of Allowance are courteously solicited.

If any impediment to the allowance of the claims remains after consideration of this amendment, and such impediment could be alleviated during a telephone interview, the Examiner is invited to telephone the undersigned at (214) 969-4669 so that such issues may be resolved as expeditiously as possible.

No additional fee is believed to be due at this time. If any applicable fee or refund has been overlooked, the Commissioner is hereby authorized to charge any fee or credit any refund to the deposit account of Akin, Gump, Strauss, Hauer & Feld, L.L.P., No. 01-0657.

Respectfully submitted,

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